UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/660,110	09/12/2000	Thomas P. Hardjono	2204/A45	6748

34845 7590 09/08/2005

STEUBING AND MCGUINESS & MANARAS LLP
125 NAGOG PARK
ACTON, MA 01720

EXAMINER	
CHOUDHURY, AZIZUL Q	
ART UNIT	**PAPER NUMBER**
2145	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/660,110	HARDJONO ET AL.	
	Examiner	Art Unit	
	Azizul Choudhury	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

This office action is in response to the correspondence received on June 27, 2005.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 and 6-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tony Ballardie and Jon Crowcroft in their paper, "Multicast-Specific Security Threats and Counter-Measures", in view of Aggarwal et al (US Pat No: US006154463A), hereafter referred to as Ballardie and Aggarwal, respectively.

1. With regards to claim 1, Ballardie teaches through Aggarwal, a multicast communication system comprising a plurality of subscriber locations, each subscriber location having an access device through which a number of subscriber devices access multicast information sent by a multicast distribution device wherein each access device acts as a sole multicast receiver for its respective subscriber location and distributes multicast information received from the multicast distribution device to the subscriber devices at its respective subscriber location, and wherein each said access device acts to join and leave at least one multicast group on behalf of the subscriber devices at its respective subscriber location, and wherein each said access device processes a join

request from one of said subscriber devices by determining whether said access device is already joined to a multicast group indicated by said join request, and, in the event that said access device is not already joined to said multicast group indicated by said join request, sending a join request to said multicast distribution device

(Ballardie teaches that memberships are available in multicast networks and hence, subscribers are able to use the network and subscriber devices must be present (page 3, first column, first paragraph, Ballardie). In addition, being a multicast, it is a network and networks have the claimed plurality of locations with access devices to enable access to the multicast network as claimed. For a multicast network to function properly, each access device in the multicast must be able to serve as a receiver to receive the data being sent through as claimed. In addition, Ballardie teaches that data sent in the multicast to the designated recipients arrives to those recipients (page 11, section 9). That means that means by which access devices act to join and leave multicast groups on behalf of subscriber devices at their respective subscriber locations must be present within Ballardie's design. The users receiving multicast information must have devices (subscriber devices such as computers and terminals) by which to access the multicast group information. At least one multicast distribution device must be present by which to distribute the multicast information (such as a server). And access devices (such as proxy servers or router) that access the device on behalf of the subscriber device also are commonly found in networks. Access devices (proxy servers or routers) are used in networks (such as multicast networks) to evaluate the subscriber request and attempt to find the optimal way of fulfilling that request. That optimal way

for a multicast network is for the claimed access device (proxy server or router) to access the multicast data from the claimed distribution device (server) and distribute the data to the claimed multicast subscriber devices (computers or terminals) as claimed. These features are present in multicast networks. In addition, since Ballardie states that that data sent in the multicast to the designated recipients arrives to those recipients (page 11, section 9), the claimed devices must exist within Ballardie's design. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

2. With regards to claim 2, Ballardie teaches through Aggarwal, a communication system wherein the multicast distribution device distributes multicast information for a number of multicast groups

(Ballardie teaches such a distribution of information (page 15, second column, first paragraph, Ballardie)), and wherein each access device uses a predetermined

multicast group management protocol to join the multicast groups on behalf of the subscriber devices at its respective subscriber location (Ballardie teaches how there are procedures for joining a group in a multicast (page 8, section 7.2). This is equivalent to the claimed joining protocol. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

3. With regards to claim 3, Ballardie teaches through Aggarwal, a communication system wherein the predetermined multicast group management protocol is an Internet Group Management Protocol (IGMP)

(Ballardie's design uses IGMP, (page 15, second column, first paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

4. With regards to claim 4, Ballardie teaches through Aggarwal, a multicast communication system comprising a multicast distribution device coupled to a plurality of subscriber locations, wherein each subscriber location is a separate subnetwork of the multicast distribution device, wherein each subscriber location comprises one and only one access device through which a plurality of subscriber devices at the subscriber location access multicast information distributed by the multicast distribution device, wherein each access device acts as a sole multicast receiver for its respective subscriber location and distributes multicast information received from the multicast distribution device to the subscriber devices at its respective subscriber location, and wherein each said access device acts to join and leave at least one multicast group on behalf of the subscriber devices at its respective subscriber location, and wherein said access device processes a join request from one of said subscriber devices by

determining whether said access device is already joined to a multicast group indicated by said join request, and, in the event that said access device is not already joined to said multicast group indicated by said join request, sending a join request to said multicast distribution device

(Ballardie discloses a design that has subnetworks and access controls at the subnetworks (page 10, second column, first paragraph, Ballardie). In addition, Ballardie discloses Authorization Servers (page 5, section 5.2). Such a server serves as a distribution device as claimed. In addition, Ballardie teaches that data sent in the multicast to the designated recipients arrives to those recipients (page 11, section 9). That means that means by which access devices act to join and leave multicast groups on behalf of subscriber devices at their respective subscriber locations must be present within Ballardie's design. The users receiving multicast information must have devices (subscriber devices such as computers and terminals) by which to access the multicast group information. At least one multicast distribution device must be present by which to distribute the multicast information (such as a server). And access devices (such as proxy servers or router) that access the device on behalf of the subscriber device also are commonly found in networks. Access devices (proxy servers or routers) are used in networks (such as multicast networks) to evaluate the subscriber request and attempt to find the optimal way of fulfilling that request. That optimal way for a multicast network is for the claimed access device (proxy server or router) to access the multicast data from the claimed distribution device (server) and distribute the data to the claimed multicast subscriber devices (computers or terminals) as claimed. These features obviously are

present in multicast networks. In addition, since Ballardie states that that data sent in the multicast to the designated recipients arrives to those recipients (page 11, section 9), the claimed devices must exist within Ballardie's design. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

5. With regards to claim 6, Ballardie teaches through Aggarwal, a communication system wherein each access device is coupled to a separate interface of the multicast distribution device

(Ballardie's design has an interface list (page 8, section 7.3). Ballardie further states that groups are added to the interface list. This is seen as having groups corresponding to an interface. With only one access device at a subscriber location, which is in a group, each access device is coupled to a separate interface as claimed.

However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

6. With regards to claim 7, Ballardie teaches through Aggarwal, a communication system wherein the multicast distribution device identifies each access device based upon the interface to which the access device is coupled

(Ballardie's design has an interface list (page 8, section 7.3). Ballardie further states that groups are added to the interface list. This is seen as having groups corresponding to an interface. In addition, Ballardie's design has servers (distribution devices) and clients (access devices). The clients (access devices) are coupled to an interface and the server must know about each server (It is an Authorization server and hence it must know about the location and status of the clients in the network). Hence, the servers (distribution devices) are able to identify the clients (access devices) as

claimed. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

7. With regards to claim 8, Ballardie teaches through Aggarwal, a communication system wherein each access device joins multicast groups maintained by the multicast distribution device on behalf of its respective subscriber devices using a multicast group management protocol

(Ballardie's design has clients (access devices) join groups through a process (protocol) (page 8, section 7.2). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

8. With regards to claim 9, Ballardie teaches through Aggarwal, a communication system wherein the multicast distribution device sends multicast information to the access devices based upon multicast group memberships of the access devices

(Ballardie teaches that memberships are available in multicast networks and hence, subscribers are able to use the network (page 3, first column, first paragraph, Ballardie). In addition, Ballardie also discloses that servers (distribution devices) and clients (access devices) exist in his design, as stated above. Furthermore, Ballardie's design contains a multicast group access control (page 2, second column, last paragraph, Ballardie). Hence, for the client to gain access as an access device, its membership to the multicast network must be verified. Thus, the server does distribute data based on the client's membership as claimed. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

9. With regards to claim 10, Ballardie teaches through Aggarwal, a communication system, wherein each access device distributes multicast information received from the multicast distribution device to its respective subscriber devices

(Ballardie's design has the membership query sent to all the end systems that subscribe (page 16, second column, first paragraph, Ballardie). The query is sent from an elected device that can be the client (access device). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie

with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

10. With regards to claim 11, Ballardie teaches through Aggarwal, a communication system wherein the multicast distribution device maintains accounting information for each subnetwork

(Ballardie's design has the AS (the Authentication Servers) create and maintain multicast certificates. The AS also holds the group access control list (ACL) (page 7, section 7.1, second paragraph, Ballardie). The AS is the distribution device and the ACL and certificates it maintains are accounting information. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

11. With regards to claim 12, Ballardie teaches through Aggarwal, a communication system wherein the accounting information comprises multicast group memberships for each subnetwork

(Ballardie's design has the AS (the Authentication Servers) create and maintain multicast certificates. The AS also holds the group access control list (ACL) (page 7, section 7.1, second paragraph, Ballardie). The AS is the distribution device and the ACL is the accounting information comprising multicast group memberships for each subnetwork. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

12. With regards to claim 13, Ballardie teaches through Aggarwal, a communication system wherein the accounting information comprises duration for each multicast group membership for each subnetwork

(Ballardie's design has the AS (the Authentication Servers) create and maintain multicast certificates. The AS also holds the group access control list (ACL) (page 7, section 7.1, second paragraph, Ballardie). The AS is the distribution device and the certificates are the accounting information comprising duration for each multicast group membership for each subnetwork. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

13. With regards to claim 14, Ballardie teaches through Aggarwal, a communication system wherein the accounting information comprises a volume of multicast information for each multicast group membership for each subnetwork

(Ballardie's design has the AS (the Authentication Servers) create and maintain multicast certificates. The AS also holds the group access control list (ACL) (page 7, section 7.1, second paragraph, Ballardie). The AS is the distribution device and the

ACL and certificates it maintains are accounting information comprising a volume of multicast information for each multicast group membership for each subnetwork. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

14. With regards to claim 15, Ballardie teaches through Aggarwal, a communication system having a multicast distribution device coupled to a plurality of subscriber locations, each subscriber location having an access device and a plurality of subscriber devices, wherein each access device acts as a sole multicast receiver for its respective subscriber location and distributes multicast information received from the multicast distribution device to the subscriber devices at its respective subscriber location, and wherein each said access device acts to join and leave at least one multicast group on

behalf of the subscriber devices at its respective subscriber location, an access control method comprising:

- Maintaining a number of multicast groups by the multicast distribution device; and
- Joining one of said number of multicast groups by a first subscriber device, wherein joining one of said number of multicast groups by the first subscriber device comprises:
  - Sending a first join request by the first subscriber device to an access device using a first multicast group management protocol;
  - Determining, by said access device, whether said access device is already joined to a multicast group indicated by said join request
  - In the event that said access device is not already joined to said multicast group indicated by said join request, joining the multicast group by the access device on behalf of the first subscriber device by sending a join request to said multicast distribution device; and
  - Associating the first subscriber device with the multicast group by the access device.

(Ballardie teaches that data sent in the multicast to the designated recipients arrives to those recipients (page 11, section 9). That means that means by which access devices act to join and leave multicast groups on behalf of subscriber devices at their respective subscriber locations must be present within Ballardie's design. The users receiving multicast information must have devices (subscriber devices such as

computers and terminals) by which to access the multicast group information. At least one multicast distribution device must be present by which to distribute the multicast information (such as a server). And access devices (such as proxy servers or router) that access the device on behalf of the subscriber device also are commonly found in networks. Access devices (proxy servers or routers) are used in networks (such as multicast networks) to evaluate the subscriber request and attempt to find the optimal way of fulfilling that request. That optimal way for a multicast network is for the claimed access device (proxy server or router) to access the multicast data from the claimed distribution device (server) and distribute the data to the claimed multicast subscriber devices (computers or terminals) as claimed. These features must be present in multicast networks. In addition, since Ballardie states that the data sent in the multicast to the designated recipients arrives to those recipients (page 11, section 9, Ballardie), the claimed devices must exist within Ballardie's design. Furthermore, Ballardie's design has the AS (Authentication Servers) create and maintain multicast certificates. The AS also holds the group access control list (ACL) (page 7, section 7.1, second paragraph, Ballardie). The AS is the distribution device and the ACL and the certificates it maintains are the items needed to maintain a number of multicast groups. Plus, clients (subscriber devices) are able to join groups in Ballardie's design (page 8, section 7.2, first paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

15. With regards to claim 16, Ballardie teaches through Aggarwal, an access control method (a system can be a method) wherein joining the multicast group by the access device on behalf of the first subscriber device comprises:

- Sending a second join request by the access device to the multicast distribution device using a second multicast group management protocol; and
- Authenticating the access device by the multicast distribution device

(Ballardie teaches the steps required to join the multicast (page 8, section 7.2). The claimed step is taught in the disclosed steps. In particular, when the client sends the authorization stamp, the AS (distribution device) authenticates it. Plus, when the authorization stamp is encrypted and sent by the client, that is a second join request

using a second protocol. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

16. With regards to claim 17, Ballardie teaches through Aggarwal, an access control method (a system can be a method) wherein authenticating the access device by the multicast distribution device comprises:

- Identifying the access device by the multicast distribution device

(Ballardie teaches the steps required to join the multicast (page 8, section 7.2). The claimed step is taught in the disclosed steps. The authorization steps in Ballardie's design provide for the claimed identifying. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

17. With regards to claim 18, Ballardie teaches through Aggarwal, an access control method (a system can be a method) wherein the access device is coupled to an interface of the multicast distribution device (The AS (multicast distribution device) and the client (access device) are coupled together by a multicast network in Ballardie's design), and wherein identifying the access device by the multicast distribution device comprises:

- Identifying the access device based upon the interface over which the second join request is received by the multicast distribution device

(Ballardie teaches the steps required to join the multicast (page 8, section 7.2). The claimed step is taught in the disclosed steps. The authorization stamp in Ballardie's design serves as the interface over which the client (access device) is

identified by the AS (distribution device). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

18. With regards to claim 19, Ballardie teaches through Aggarwal, an access control method (a system can be a method) authenticating the access device by the multicast distribution device comprises:

- Authenticating the access device using a predetermined authentication scheme

(The authentication is performed in Ballardie's design using a predetermined authentication scheme, which uses an authentication stamp and time stamp (page 8, section 7.2). If an authentication is to occur, it is obvious that the authentication method is predetermined. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

19. With regards to claim 20, Ballardie teaches through Aggarwal, an access control method (a system can be a method) wherein the predetermined authentication scheme comprises IPsec AH

(Ballardie's teaches IP (Internet protocols) and multicasts (page 3, section 2, 2nd paragraph, Ballardie). In addition, Ballardie's design focuses on security for multicasts (page 1, first column, first paragraph, Ballardie). Furthermore, Ballardie teaches the use of authentication headers (AH) in IP (page 6, first column, second paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

20. With regards to claim 21, Ballardie teaches through Aggarwal, an access control method (a system can be a method) further comprising:

- Determining by the multicast distribution device that the access device is authentic; and
- Establishing a multicast group membership for the access device by the multicast distribution device

(This AS (authentication server) (multicast distribution device) performs security verifications (page 5, section 5.3, third paragraph, Ballardie), this includes authentications. Ballardie's design has the AS (distribution device) create and maintain the multicast certificates (which are needed to establish connections) (page 7, section 7.1, second paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

21. With regards to claim 22, Ballardie teaches through Aggarwal, an access control method (a system can be a method) further comprising:

- Determining by the multicast distribution device that the access device is not authentic; and
- Denying a multicast group membership for the access device by the multicast distribution device

(Ballardie teaches the steps required to join the multicast (page 8, section 7.2). The claimed step is taught in the disclosed steps. In particular, when the client sends the authorization stamp, the AS (distribution device) authenticates it. In addition, when the client sends the authorization stamp, the AS (distribution device) authenticates it. If the AS cannot authenticate, a rejection message is sent. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

22. With regards to claim 23, Ballardie teaches through Aggarwal, an access control method (a system can be a method) wherein associating the first subscriber device with the multicast group by the access device comprises:

- Maintaining by the access device a list of subscriber devices associated with the multicast group; and
- Adding the first subscriber device to the list of subscriber devices associated with the multicast group

(In Ballardie's design, a client chooses to join a restricted group (page 8, section 7.2, first paragraph, Ballardie). It is therefore obvious that the client (access device) knows what subscriber devices are available (by keeping a list) and can add subscriber devices to its list. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

23. With regards to claim 24, Ballardie teaches through Aggarwal, an access control method (a system can be a method) further comprising:

- Leaving the multicast group by the first subscriber device;
- Leaving the multicast group by the access device on behalf of the first subscriber device; and
- Disassociating the first subscriber device from the multicast group by the access device

(If a subscriber device is able to join the multicast as stated above, it is obvious that the device can leave the multicast group. Plus, if the subscriber device leaves the multicast, then the access must leave the group as well. When both the access device and the subscriber device leave the multicast, they lose the need to associate with one another. It is obvious that the subscriber device would disassociate with the access device. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

24. With regards to claim 25, Ballardie teaches through Aggarwal, an access control method (a system can be a method) further comprising:

- Joining the multicast group by a second subscriber device, wherein joining the multicast group by the second subscriber device comprises: sending a third join request by the second subscriber device to the access device using a third multicast group management protocol (Ballardie teaches the steps required to join the multicast (page 8, section 7.2). A second subscriber device is able to join the multicast. When it does, it will have to pass its own authentication process, which uses data (such as keys and stamps) that are different than the first subscriber to join. Thus, the second subscriber device sends a third join request as claimed); and

- Associating the second subscriber device with the multicast group by the access device

(Ballardie teaches the steps required to join the multicast (page 8, section 7.2, Ballardie). A second subscriber device is able to join the multicast. When it does, it will have to pass its own authentication process, which uses data (such as keys and stamps) that are different than the first subscriber to join. Thus, the second subscriber device sends a third join request as claimed. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

25. With regards to claim 26, Ballardie teaches through Aggarwal, an access control method (a system can be a method) further comprising:

- Leaving the multicast group by one of the first subscriber device and the second subscriber device;

- Remaining joined to the multicast group by the access device on behalf of the remaining subscriber device; and
- Disassociating said one of the first subscriber device and the second subscriber device from the multicast group by the access device

(If the subscriber device leaves the multicast then it is obvious that the access device will leave the group as well. Plus, in a network devices can enter and leave one at a time without the activities of the other devices being affected. So, if one subscriber device leaves the multicast network, it is obvious that the others can remain. When both the access device and the subscriber device leave the multicast, they lose the need to associate with one another. It is obvious that the subscriber device would disassociate with the access device. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

26. With regards to claim 27, Ballardie teaches through Aggarwal, an access control method (a system can be a method) further comprising:

- Maintaining accounting information by the multicast distribution device for each multicast group for each subscriber location

(Ballardie's design has the AS (the Authentication Servers) create and maintain multicast certificates. The AS also holds the group access control list (ACL) (page 7, section 7.1, second paragraph, Ballardie). The AS is the distribution device and the ACL and certificates it maintains are accounting information. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

27. With regards to claims 28 and 42, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) for operating as a sole

multicast receiver on behalf of a plurality of subscriber devices at a subscriber location in a multicast communication network, the apparatus comprising:

- A network interface couplable to a multicast distribution device;
- A subscriber interface couplable to the number of subscriber devices at the subscriber location; and
- Switching logic interposed between the network interface and the subscriber interface, wherein the switching logic is operably coupled to join and leave multicast groups maintained by the multicast distribution device on behalf of the plurality of subscriber devices at the subscriber location and forward multicast information to the subscriber devices at the subscriber location, and wherein said switching logic processes a join request from one of said subscriber devices by determining whether said apparatus is already joined to a multicast group indicated by said join request, and, in the event that said apparatus is not already joined to said multicast group indicated by said join request, sending a join request to said multicast distribution device

(Ballardie discloses a design with a user interface (page 8, section 7.2, first paragraph, Ballardie). Such an interface is a subscriber interface. In addition, Ballardie's design uses routers (page 5, section 5.3, fourth paragraph, Ballardie). Routers uses switching logic between the network interface and the subscriber interface and are able to join groups. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

28. With regards to claims 29 and 43, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the switching logic comprises:

- First multicast group management logic operably coupled to control first multicast group memberships between the apparatus and the subscriber devices;
- Second multicast group management logic operably coupled to control second multicast group memberships between the apparatus and the multicast distribution device; and
- Membership logic operably coupled to maintain said first and second multicast group memberships

(For two devices to function together, it is obvious that they would be coupled together by some means (that includes by management logic). Ballardie's design has access controls to maintain memberships as deemed appropriate (page 7, section 7.1, first paragraph, Ballardie). This is equivalent to membership logic and obviously maintains memberships. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

29. With regards to claims 30 and 44, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the first multicast group management logic comprises Internet Group Management Protocol (IGMP) logic for exchanging multicast group membership information with the subscriber devices

(Ballardie's design uses IGMP, (page 15, second column, first paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

30. With regards to claims 31 and 45, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the second multicast group management logic comprises Internet Group Management Protocol (IGMP) logic for exchanging multicast group membership information with the multicast distribution device

(Ballardie's design uses IGMP, (page 15, second column, first paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

31. With regards to claims 32 and 46, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the membership logic is operably coupled to associate the first multicast group memberships with the second multicast group memberships

(In Ballardie's design there are routers that deal with memberships (page 8, section 7.2, first paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the

join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

32. With regards to claims 33 and 47, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the membership logic is operably coupled to maintain a list of subscriber devices for each of said second multicast group memberships

(Ballardie's design has both ACL (page 7, section 7.1, second paragraph, Ballardie) and interface lists (page 8, section 7.3, first paragraph, Ballardie). Both lists are able to hold subscriber information and can be coupled to membership logic. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie

with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

33. With regards to claims 34 and 48, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the first multicast group management logic is operably coupled to receive a join request from a subscriber device for joining a multicast group

(Ballardie teaches how there are procedures for joining a group in a multicast (page 8, section 7.2, Ballardie). This is equivalent to the claimed joining protocol. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

34. With regards to claims 35 and 49, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the second multicast group management logic is operably coupled to join the multicast group on behalf of the first subscriber device

(Ballardie teaches how there are procedures for joining a group in a multicast (page 8, section 7.2, Ballardie). This is equivalent to the claimed joining protocol. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

35. With regards to claims 36 and 50, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the membership logic is operably coupled to associate the first subscriber device with the multicast group

(As stated above, Ballardie teaches that memberships are available in multicast networks and hence, subscribers are able to use the network and subscriber devices must be present (page 3, first column, first paragraph, Ballardie). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

36. With regards to claims 37 and 51, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the first multicast group management logic is operably coupled to determine that a subscriber device has left a multicast group

(As stated above, If the subscriber device can join the multicast as stated above, it is obvious that the device can leave the multicast group. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

37. With regards to claims 38 and 52, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the membership logic is operably coupled to disassociate the subscriber device from the multicast group

(When the subscriber device leaves the multicast, it loses the need to associate with the multicast. It is obvious that the subscriber device would disassociate with the multicast. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the

join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

38. With regards to claims 39 and 53, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the second multicast group management logic is operably coupled to determine whether there are any remaining subscriber devices associated with the multicast group based upon the membership information maintained by the membership logic

(Ballardie's design uses ACL (page 7, section 7.1, second paragraph, Ballardie) and interface lists (page 8, section 7.3, first paragraph, Ballardie). With such lists, the network has the means by which to detect if any devices are attached to the multicast (including subscriber devices). However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie

with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

39. With regards to claims 40 and 54, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the second multicast group management logic is operably coupled to remain a member of the multicast group upon determining that there is at least one remaining subscriber device associated with the multicast group

(Ballardie's design uses ACL (page 7, section 7.1, second paragraph, Ballardie) and interface lists (page 8, section 7.3, first paragraph, Ballardie). With such lists, the network has the means by which to detect if any devices are attached to the multicast (including subscriber devices). In addition, in a network if one device leaves, other devices are permitted to remain connected. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie

with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

40. With regards to claims 41 and 55, Ballardie teaches through Aggarwal, an apparatus (a system can be an apparatus and a program) wherein the second multicast group management logic is operably coupled to leave the multicast group upon determining that there are no remaining subscriber devices associated with the multicast group

(Ballardie's design uses ACL (page 7, section 7.1, second paragraph, Ballardie) and interface lists (page 8, section 7.3, first paragraph, Ballardie). With such lists, the network has the means by which to detect if any devices are attached to the multicast (including subscriber devices). In addition, in a network a device can leave at various times. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie

with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

41. With regards to claim 56, Ballardie teaches through Aggarwal, a program embodied in a computer readable medium

(Ballardie's design features servers (page 5, section 5.3, second paragraph, Ballardie) and clients (page 8, section 7.2, first paragraph, Ballardie). It is obvious that both servers and clients use programs and must have computer readable mediums. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

42. With regards to claim 57, Ballardie teaches through Aggarwal, a program embodied in a data signal

(Ballardie's design features servers (page 5, section 5.3, second paragraph, Ballardie) and clients (page 8, section 7.2, first paragraph, Ballardie). Clients and servers both use programs and it is obvious that the program would be embodied in a data signal. The data signal can be stored in a medium. However, Ballardie does not disclose that the access devices (routers) handle the join request.

Aggarwal discloses a design for multicasting. In the disclosure, Aggarwal teaches the use of gatekeeper routers (column 22, lines 11-67, Aggarwal). These gatekeeper routers serve as the claimed access device by handling the join tasks.

Both Ballardie and Aggarwal disclose designs for multicast systems. While Ballardie's disclosure does not state the use of a router (access device) that handles the join requests, Aggarwal's disclosure does. Thus, it would have been obvious to one skilled in the art, during the time of the invention, to combine the teachings of Ballardie with those of Aggarwal, to provide multicast capability (column 3, lines 24-27, Aggarwal)).

Response to Remarks

The amendment received June 27, 2005 has been carefully examined but is not deemed fully persuasive. No amendments have been made to the claims submitted, only remarks. The primary concern addressed within the applicant's remarks involves the claim language used within the primary claims, 1, 4, 15, 28 and 42. Within the claim language, the applicant is claiming a design where multiple subscriber locations are attached at each single access device. In addition, it is the access device that handles the join and leave (essentially, the access control) requests. The applicant believes that

such traits are not present within either of the prior arts submitted. The examiner does not however agree with this belief and directs the applicant's attention towards the Aggarwal prior art. Within the office action it is noted that the Aggarwal design makes use of gateway routers (column 22, lines 11-67, Aggarwal). These routers handle the access control functions for multiple users as claimed. Furthermore, if further proof is necessary that such means are present, Aggarwal also discloses that the CSM protocol (which is present within the Aggarwal design) allows for group memberships changes for join and leave requests for a group of users (column 5, lines 21-35, Aggarwal). Group memberships allow a group of users to join and leave a group whereas a design with simply just single membership requires more join/leave requests to be processed since each individual request must be processed. For these reasons, the examiner must stand by his rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azizul Choudhury whose telephone number is (571) 272-3909. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (571) 272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AC

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER

SUPERVISORY PATENT EXAMINER
RUPAL DHARIA